

ists—that important information about science and technology and their value to society is not reaching the public. In addition, the media have come under criticism, especially by scientists, for sometimes providing a distorted view of science and the scientific process, and thus contributing to scientific illiteracy.

Computers and computer technology represent a relatively new way of acquiring information, including information about science and technology. Computer usage—including access to the Internet and the use of e-mail—has skyrocketed. This phenomenon is thoroughly explored in chapter 9, “Significance of Information Technologies.”

## Selected Bibliography

- The American Institute of Physics. 1997. “Congressman Ehlers on Science Policy.” In *Bulletin of Science Policy News* (November 21).
- Angell, M. 1996. *Science on Trial: The Clash of Medical Evidence and the Law in the Breast Implant Case*. New York: W.W. Norton & Company, Inc.
- Augustine, N. 1998. “What We Don’t Know Does Hurt Us. How Scientific Illiteracy Hobbles Society.” *Science* (March 13).
- Beyerstein, B.L. 1998. “The Sorry State of Scientific Literacy in the Industrialized Democracies.” *The Learning Quarterly* 2, No. 2:5–11.
- Bragg, M. 1998. “Opportunity Knocks!” *Science* (August 21).
- The Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP). Information available from <<<http://www.csicop.org>>>.
- Davis, J.A., and T.W. Smith. *General Social Surveys, Cumulative Codebook*. Annual Series. Chicago: University of Chicago, National Opinion Research Center.
- De Robertis, and Delaney. 1993. “A Survey of the Attitudes of University Students to Astrology and Astronomy.” *Journal of the Royal Astronomical Society of Canada* 87, No. 1:34–50.
- Evans, W. 1996. “Science and Reason in Film and Television.” *The Skeptical Inquirer* (January/February).
- Frankel, M.S. 1998. “The Role of Science in Making Good Decisions.” Testimony before the House Committee on Science (June 10).
- Gallup News Service Poll. 1996. (September). Results are based on telephone interviews with 1,000 adults, age 18 and older, conducted September 3–5, 1996. For results based on the total sample of adults, one can say with 95-percent confidence that the margin of sampling error is plus or minus 3 percentage points.
- Gannett Co., Inc. 1996. “1996 Media Effectiveness Study.” Corporate Research.
- Gerbner, G. 1987. “Science on Television: How It Affects Public Conceptions.” *Issues in Science and Technology* (spring):109–15.
- The Harris Poll #41. 1998. “Large Majority of People Believe They Will Go to Heaven; Only One in Fifty Thinks They Will Go to Hell: Many Christians and Non-Christians Believe in Astrology, Ghosts, and Reincarnation.” New York: Louis Harris & Associates, Inc. (August 12). This poll was conducted by telephone within the United States July 17–21, among a nationwide cross-section of 1,011 adults. The results have a statistical precision of plus or minus 3 percentage points.
- Hartz, J., and R. Chappell. 1997. *Worlds Apart: How the Distance Between Science and Journalism Threatens America’s Future*. Nashville, TN: Freedom Forum First Amendment Center.
- Herron, K.G., and H.C. Jenkins-Smith. 1998. *Public Perspectives on Nuclear Security*. Albuquerque, NM: The University of New Mexico Institute for Public Policy (June). Rigorous probability sampling methods were applied, yielding an approximate sampling error of plus or minus 3 percentage points for the scientist and general public samples and approximately plus or minus 4 percentage points for the legislator sample. For the general public, a sample frame of randomly selected and randomly ordered households having one or more telephones was purchased from Survey Sampling, Incorporated, of Fairfield, Connecticut. Probability sampling was extended within each household by interviewing only the member of the household over the age of 18 with the most recent birthday. Up to 10 attempts were made to contact the individual selected for the sample. No substitutions were made. The scientists and legislators in the survey were sent questionnaires by mail. For the scientists in the survey, participants were randomly chosen from among 123,406 scientists and engineers whose names were published in *American Men and Women of Science, 1995–1996*. A sample frame of 7,000 names was purchased from Cahners Direct Marketing Services in New York. The final sample was constructed using a random number generator and was stratified in proportion to the percentage of members classified in each of nine major scientific disciplines specified by the publisher and a tenth category identified by the publisher as “other professional fields.” The legislator sample was systematically selected from the total population of 7,424 state legislators listed in the *State Leadership Directory: Directory 1—Elective Officials 1997*, published by the Council of State Governments, Lexington, Kentucky, and stratified in three ways.
- Hill, R.L. 1997. “Peddling the Paranormal.” *The Sunday Oregonian Forum* (September 21).
- Irwin, H. 1993. “A Study of the Measurement and the Correlates of Paranormal Belief.” *Journal of the American Society for Psychical Research* 79:301–26.
- Kansas City Star and Wichita Eagle. 1999. “Evolution Poll Results” (November 7). Available from <<<http://www.kcstar.com/news/stories/evpoll.htm>>>. Telephone interviews of 604 Kansas residents conducted by Market Research Institute, Inc. The poll has a margin of error of 4 percentage points.
- Kimmel, L. 1997. “Public Attitudes about the Use of Animals in Scientific Research.” Paper presented at a confer-

- ence, "Hot Topics about Research Animal Welfare." Sponsored by the Scientists Center for Animal Welfare and The University of Texas Health Science Center at San Antonio, Texas (December 11–12).
- Kimmel Pifer, L. 1994. "Adolescents and Animal Research: Stable Attitudes or Ephemeral Opinions?" *Public Understanding of Science* 3:291–307.
- Klass, P.J. 1996. "That's Entertainment! TV's UFO Coverup." *Skeptical Inquirer* (November/December).
- Lewis, R. 1996. "Scientists Can Help Keep the Media's Take on Research Closer to Reality." *The Scientist* (November 25).
- Maienschein, J., and students. 1999. "Commentary: To the Future. Argument for Scientific Literacy." *Science Communication* (September):101–13.
- Miller, J.D., and K. Prewitt. 1979. "The Measurement of the Attitudes of the U.S. Public Toward Organized Science." Report to the National Science Foundation under Contract SRS78-16839. Chicago: National Opinion Research Center.
- Miller, J.D., K. Prewitt, and R. Pearson. 1980. "The Attitudes of the U.S. Public Toward Science and Technology." Report to the National Science Foundation under NSF Grant 8105662. DeKalb, IL: Public Opinion Laboratory.
- Miller, J.D., L. Kimmel, and M. Hess. 2000. *1999 Study of Public Attitudes Toward and Understanding of Science and Technology: Methodological Report*. Chicago: Chicago Academy of Sciences.
- Miller, J.D., R. Pardo, and F. Niwa. 1997. *Public Perceptions of Science and Technology: A Comparative Study of the European Union, the United States, Japan, and Canada*. Chicago: Chicago Academy of Sciences.
- Miller, J.D., C. Midden, E. Einseidel, and L. Kimmel. 1999. Attitudes toward Biotechnology in Canada, the European Union, and the United States. Unpublished manuscript.
- Miller, J.D., and L. Kimmel. 1999. *Public Attitudes Toward Science and Technology, 1979–1999, Integrated Codebook*. Chicago: Chicago Academy of Sciences, International Center for the Advancement of Scientific Literacy.
- National Science Board. 1972–96. *Science and Engineering Indicators*. Biennial Series. Washington, DC: U.S. Government Printing Office.
- . 1998. *Science and Engineering Indicators—1998*. NSB 98-1. Arlington, VA: National Science Foundation.
- . 1999. "National Science Board Statement on the Action of the Kansas Board of Education on Evolution." NSB 99-149 (August 20). Available from << <http://www.nsf.gov/nsb/documents/1999/nsb99149/nsb99149.htm>>>.
- Parker, K., and C. Deane. 1997. "Ten Years of the Pew News Interest Index: A Report for Presentation at the 1997 Meeting of the American Association for Public Opinion Research." The Pew Research Center for the People and the Press.
- Peccei, R., and F. Eiserling. 1996. "Literacy for the 21st Century." *Los Angeles Times* (February 26).
- The Pew Research Center for the People and the Press. 1997. Survey conducted by Princeton Survey Research Associates among a nationwide sample of 1,211 adults, 18 years of age or older, during the period of February 20–23, 1997.
- The Pew Research Center for the People and the Press. 1999a. "Optimism Reigns, Technology Plays a Key Role." Available from << <http://www.people-press.org/mill2rpt.htm>>>. Results of the survey are based on telephone interviews conducted under the direction of Princeton Survey Research Associates among a nationwide sample of 1,546 adults, 18 years of age or older, during the period April 6–May 6, 1999. A random digit sample of telephone numbers selected from telephone exchanges in the continental United States was used. At least five attempts were made to complete an interview at every sampled telephone number. To compensate for known biases in telephone surveys of this type, the sample data were weighted in analysis. For results based on the total sample, one can say with 95-percent confidence that the error attributable to sampling and other random effects is plus or minus 3 percentage points.
- The Pew Research Center for the People and the Press. 1999b. "Public Attentiveness to Major News Stories (1986–1999)." Available from << <http://www.people-press.org/database.htm>>>. The "news interest database" is constructed from the results of regular national surveys that measure public attentiveness to major news stories. Each telephone survey is conducted under the direction of Princeton Survey Research Associates and uses a random digit sample of telephone numbers selected from telephone exchanges in the continental United States. For more detailed information about how these surveys were conducted, refer to << <http://www.people-press.org/index.htm>>>.
- Public Opinion Strategies and Luntz Research and Strategic Services. 1996. "American Opinion on Government R&D: The Results of Focus Groups."
- Randi, J. 1992. "It's Time for Science to Take a Stand Against Popular Superstitions." *Time* (April 13).
- Research! America. 1996. Public Opinion Poll Data. Charlton Research Company. Data are also available from << <http://www.researchamerica.org>>>.
- Research! America. 1999. Public Opinion Poll Data. Charlton Research Company. Data are also available from << <http://www.researchamerica.org>>>.
- The Roper Center for Public Opinion Research. 1994.
- The Roper Center for Public Opinion Research. 1996. "American Views of Science and Technology." A survey commissioned by the National Science & Technology Medals Foundation (July 25). In this survey, 1,000 respondents were interviewed by telephone (using standard random digit dialing techniques) between May 31 and June 14, inclusive. The margin of error is approximately plus or minus 3.5 percent.
- Sagan, C. 1996. *The Demon Haunted World: Science as a Candle in the Dark*. New York: Random House.

- Shermer, M. 1997. *Why People Believe Weird Things: Pseudoscience, Superstition, and Other Confusions of Our Time*. New York: W.H. Freeman and Company.
- Southern Focus Poll. 1998. Conducted by The University of North Carolina at Chapel Hill, Institute for Research in Social Science (spring). Available from <<<http://www.irss.unc.edu>>>. The Southern Focus Poll is sponsored by the Institute for Research in Social Science and the Center for the Study of the American South. Each fall and spring, a random sample of approximately 800 adult Southerners (residents of the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia) and 400 non-Southerners are interviewed by telephone. For more information, see <<<http://www.irss.unc.edu/irss/researchdesservices/resdesservices.html>>>.
- Sparks, G.G. 1998. "Paranormal Depictions in the Media: How Do They Affect What People Believe?" *Skeptical Inquirer* (July/August):35-9.
- Sparks, G.G., T. Hansen, and R. Shah. 1994. "Do Televised Depictions of Paranormal Events Influence Viewers' Beliefs?" *Skeptical Inquirer* 18:386-95.
- Sparks, G.G., and M. Pellechia. 1997. "The Effect of News Stories about UFOs on Readers' UFO Beliefs: The Role Confirming or Disconfirming Testimony from a Scientist." *Communication Reports* (summer).
- Sparks, G.G., C.L. Nelson, and R.G. Campbell. 1997. "The Relationship Between Exposure to Televised Messages About Paranormal Phenomena and Paranormal Beliefs." *Journal of Broadcasting & Electronic Media* 41 (summer):345-59.
- Supplee, C. 1999. "Covering Science and Other Dark Matters." Lecture at the National Science Foundation. Arlington, VA (May 25).
- USA Today Poll. 1998. Conducted by Yankelovich Partners (April 20). In Nisbet, M. "New Poll Points to Increase in Paranormal Belief." Available from <<<http://www.csicop.org/articles/poll/index.html>>>. One thousand people were surveyed in 1997 (8,709 in 1976); the poll has a margin of error of plus or minus 3.5 percent.
- USA Today/NSF/Gallup Poll. 1999. "Americans and the Y2K Millenium Computer Bug." Results are based on telephone interviews with approximately 1,000 national adults, age 18 or older. For results based on the total sample of national adults, one can say with 95-percent confidence that the margin of sampling error is plus or minus 3 percentage points.
- Wiggins, R.C. 1997. "Scientists Must Clarify the Societal Relevance of Research." *The Scientist* (February 3).
- The Wirthlin Group. 1995. "Qualitative and Quantitative Research on University Research Grants Conducted on Behalf of Chlopak, Leonard, Schechter, and Associates." No. 6898-46 (March).